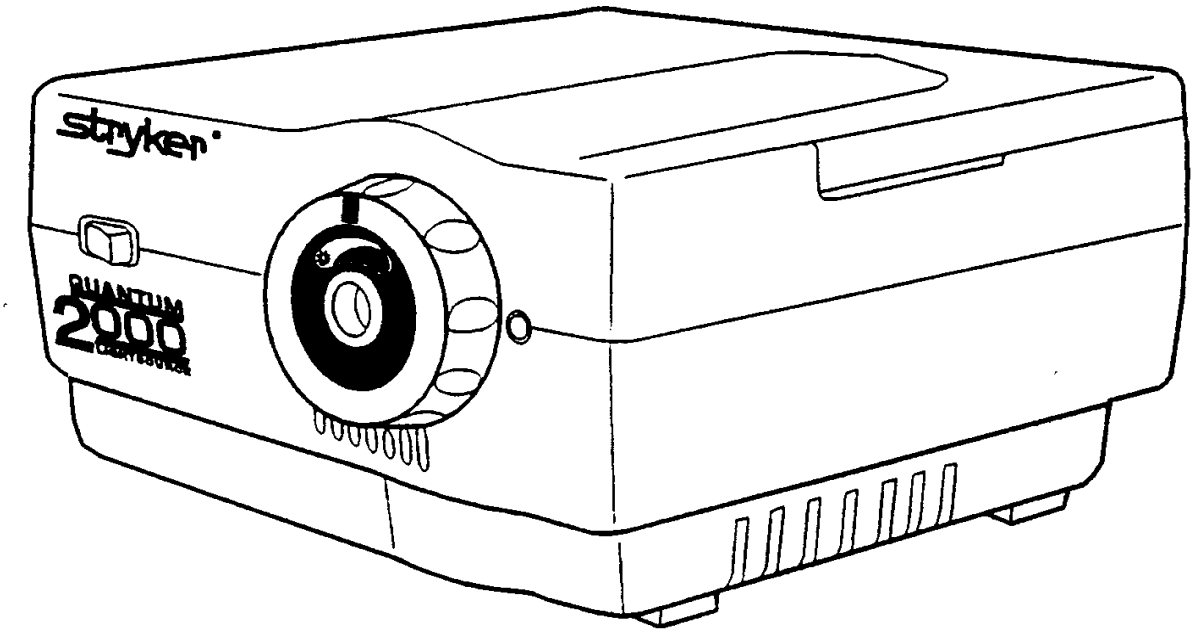
Stryker® Quantum 2000 Light Source

Service Manual



stryker®

WelchAllyn™

P/N 809853 Rev A.
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Revision History

Rev.	Description of Change	ECN #	Date	Initial
A	New Release	11717	11/26/97	MD

To Service Personnel:

The information in this manual is subject to change without notice and should not be construed as a commitment by Welch Allyn, Inc.

Welch Allyn assumes no responsibility for any errors that may appear in this manual. If the product and/or its operation varies significantly from any description herein, please contact the Welch Allyn GMBH Product Service Department.

This product has been designed to provide a high degree of safety and reliability. However, we can not guarantee against the deterioration of components due to aging and normal wear.

All service and repairs must be performed by authorized Welch Allyn personnel or agents, using Welch Allyn replacement parts. Failure to do so will invalidate the product warranty.

Authorized service centers should refer to repair specification for proper test and device history record requirements.

Please refer to the operating manual, product warranty section for specific coverage.

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Light Box Assembly BOM (Reference Only) 809643

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Interconnect Diagram (Reference Only) 809744

Fan Wire Harness Assembly (Reference Only) 809713

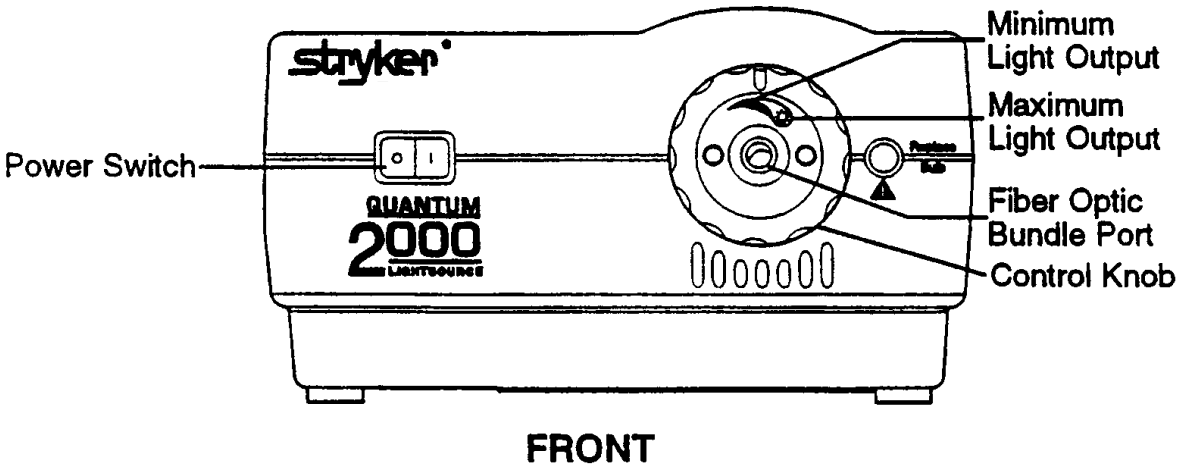
Note that the drawings contained within this manual are for reference only. Consult factory for specific drawing and revision level.

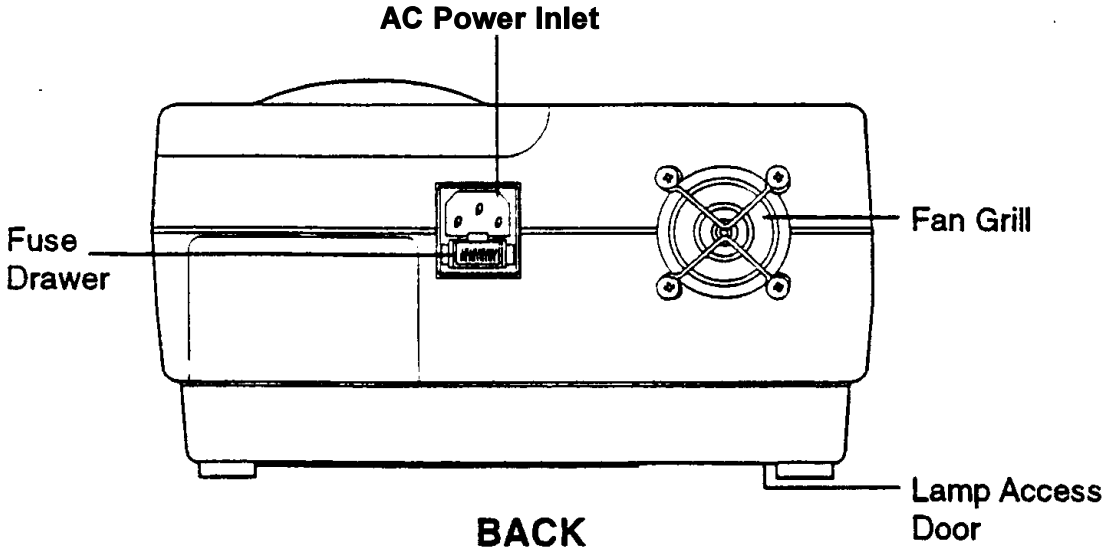
Section 1

General Information

Introduction

Basic System Description





Specifications

Electrical
Input Voltage: 100 - 240 VAC, 50 - 60 Hz
Input Current: 1A (@100 VAC
Output 60 VDC @ 0.4A
Leakage Current <100μA

Dimensions
WxLxH = 11.43cm (W) x 16.5cm (L) x 6.35cm (H)

Light Source Weight
Under 5 pounds (2.25 Kilograms)

Illumination System
Welch Allyn Lamp 09500
Color temperature: 5500°K
Lamp: 60 Volts, 24 Watts
Lamp Life: 350 Hrs Average

Dimming System
Manual Shutter: 20% to 100% full output

Fiber Optic Interface
StandardACMI Connector

Environment

Storage:	Humidity: 10% to 100%
	Temperature: -25°C to +60°C
	Pressure: 500hPA to 1060hPA
Operating	Humidity: 10% to 95% non-condensing
	Temperature: +15°C to +30°C

Equipment Classification
Class 1, Type B Continuous Operation. Ordinary equipment, not suitable for use in the presence of flammable anesthetic mixtures.

Fuses
T1.0A L250V (1.0Amp., 250V, time lag (Slow-Blow), Low breaking capacity)

Approvals:
See Operating Manual

Section 2

Service

Intent of Manual

The purpose of this manual is to provide Welch Allyn Inc. authorized service representatives with systematic guidelines for preventative maintenance, problem identification, and service of the Stryker Light Source. We have included the theory of operation schematic diagrams, simplified drawings, service tips and procedures to assist a trained service representative with board-level repairs. Should you encounter problems that are beyond the scope of this manual, please contact your local Welch Allyn Technical Service Department for assistance.

Required Tools and Equipment for Service

1. 3/8" Nut Driver
2. Screwdriver(s): Phillips #1, Phillips #2
3. Screwdriver: Flat Blade #4
4. Long Nose Pliers
5. Wire Cutters
6. Antistatic Workstation
7. Digital Volt/Ohm Meter with Leads (True RMS).
8. Soldering Iron
9. Solder Sucker or Desoldering Wick
10. DC Power Supply capable of providing 10 amps at 10VDC.
11. Hy-Pot Tester- Associated Research Inc. Model 411 AI AC Hipot Jr or Equivalent.
12. Final Production Test Spec P02760

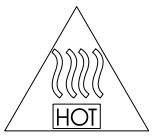
Words of Caution:

High Voltage

Use caution when servicing. When servicing the unit, potentially dangerous high voltage levels are exposed. Disconnect the power cord whenever possible to avoid electric shock.

Static Electricity (ESD)

Adhere to standard ESD practices at all times when servicing this equipment. Many of the electronic devices in this equipment are static sensitive, and may suffer catastrophic or latent failure if handled improperly.



Heat

Lamps, power supplies, and heat sinks may emit extreme amounts of heat during and after operation. Approach and handle these and other potentially hot components with caution.

Finished Parts

Handle all finished parts with care. The finish can be easily scratched or damaged from poor or improper handling.

Performance Check

Make sure the system is connected as follows:

1. Be sure that power is being provided by the wall outlet.
2. Be sure that the Lamp is installed properly.
3. Be sure that the cooling fan is turning when the unit is turned on.
4. The light source should produce a bright continuous white light with no flickering after a warm-up period of 5-15 seconds.

If any of these conditions do not occur, see the troubleshooting section.

Final Test

1. Perform final production tests (See required tools for Final production Test P/N) as appropriate according to model number. Consult drawings and B.O.M as needed.

2. Ignore Lightbox Data Sheet.

3) Ignore paperwork check.

COSMETICS: Note all major cosmetic defects at evaluation and include in estimate as appropriate.

Calibrations

Not Applicable

Section 3

Problem Solving

Troubleshooting

Experience shows that many service calls are due to improper operator technique and poor connections. Before taking apart the light source, make sure that setup errors are not causing the problem. **When checking voltages or signals, be sure to verify the signal through the harness wires, connectors, and on the circuit board.**

Symptom	Possible Cause	Procedure
Lamp does not illuminate, but the fan is running.	Lamp connector is out of place.	Remove lamp cover and reseat the connector.
	Lamp is blown.	Verify unit functions with a known good lamp or lamp functions with a known good unit.
	Defective ballast	Verify Voltage input and output of the Ballast board. Refer to wiring diagram. **Note: There is 6KV to 7KV present at the output during startup.**
	Defective Power supply. No +15VDC present.	Check output of power supply per wiring diagram. Replace supply if no voltage is present.
	Defective or misaligned wire harness (W006) (See Interconnect Diagram)	Check alignment of connector at J2B of ballast board and J2 of switched power supply. Verify voltage from ballast board to harness to lamp service LED.
	Defective thermal cut-out device (Temperature clearly does not exceed 80°C ±5°)	Verify +15V from power supply pin 2 at J2 to thermal cut-out to ballast board pin 2 at J2B. Replace if found to be defective.
	Power switch was prematurely engaged after turning off power switch (<30 Sec.)	Wait >30 seconds and reapply power.

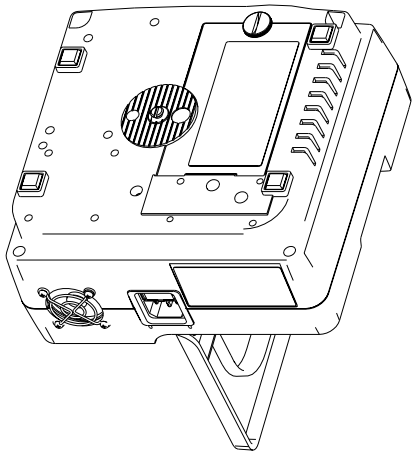
Symptom	Possible Cause	Procedure
Lamp cuts out after a short period of operation	Fan is not functioning, temperature has exceeded 80°C, thermal cut-off is engaged.	Verify correct voltages at the input and output of the power supply *(See interconnect diagram).* If all voltages are within specification, then replace M1 fan assembly.
	Defective ballast	Verify Voltage input and output of the Ballast board. Refer to wiring diagram. **Note: There is 6KV to 7KV present at the output during startup.**
Lamp not illuminated, fan does not function (No power is apparent).	Covered or clogged air vent.	Check to see if anything is covering the air vents, Clear as necessary.
	Power line is damaged or disconnected.	Connect, repair, or replace as necessary.
	Power is not turned "ON"	Turn power on.
	Lamp Door Interlock switch is disengaged.	Verify that the lamp cover is firmly and properly in place and that interlock switch is functioning properly. Verify continuity to be sure that the switch is working properly.
	AC line fuses F1 and/or F2 are open.	Verify and replace as necessary.
	Open circuit connection.	Verify AC input through unit to the Switching Power Supply.
	Power supply circuit defective.	Verify DC output at J2 of Switching Power Supply.
	Other circuits loading down power supply.	If the fuse is blown, disconnect the plug from J2 (Output of the Switching Power Supply). Replace the blown fuse, and reapply power. Verify DC output at J2. If no voltage is present or fuse is again blown, replace Switching Power supply.

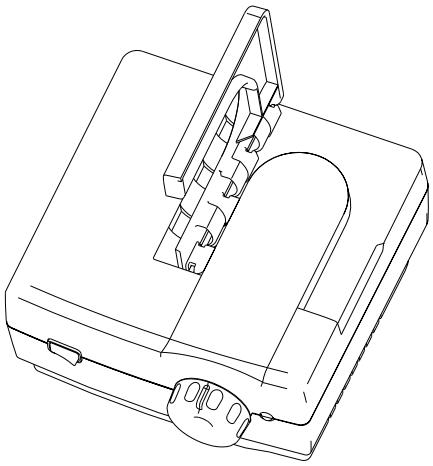
Symptom	Possible Cause	Procedure
Low light output.	The manual shutter assy. in the light source is set to minimum.	Adjust the shutter for maximum light output.
	Dirt on fiber optic light carrier.	Remove the fiber optic cable from the light source and clean both ends with alcohol and a cotton swab.
	Lamp is near end of life	Replace Lamp.
Lamp is illuminated, lamp service LED is on	Lamp is defective	Replace with a known good lamp.
	Lamp is near end of life (Light output can be purple or bluish in nature)	Replace with a known good lamp.
	Defective or misaligned wire harness (W006) (See Interconnect Diagram)	Check alignment of connector at J2 of ballast board. Verify voltage from ballast board to harness to lamp service LED.
	Defective Ballast	Check voltage on pin 2, J1B (See Interconnect Diagram) of Ballast Board. It should measure 10.5V with service LED off, 0V with lamp service on. Replace ballast if defective.

Section 4

Disassembly and Repair

This section describes how to remove and replace major sub assemblies within the Stryker Light Source





Top Housing Disassembly

1. **Remove** the top two screws (Phillips) that hold the fan guard in place.
   Note not to remove the bottom fan guard screws as it will cause grounding harness to be removed forcing you to remove the air baffle and reassemble.

2. **Remove** the five screws (Phillips) on the bottom of the unit and lift the top housing assembly upwards.

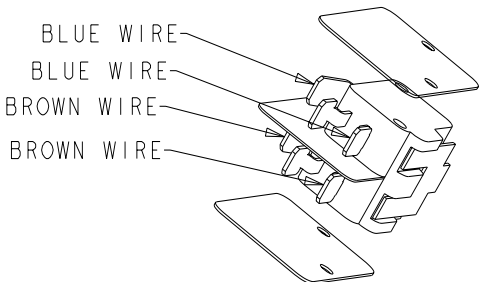
Double Pole Micro Switch (Lamp Door Interlock Switch) Replacement

1. Remove and set aside the lamp door.

2. **Remove** the top housing as instructed in "Top Housing Removal" section.

3. **Free** the switch by removing the two screws (809643 #7) and disconnecting wire harnesses W001 and W002. Note position of wires for reassembly.

4. **Replace** and reassemble in reverse order.



Ballast Board Replacement

1 **Remove** the top housing.

2. **Remove** the fan baffle (809643 #97) by removing the two Phillips head screws (809643 #60 & #89) holding the baffle in place. Note to recover and set aside the spacer (809643 #104) (809643 Section A-A) while disassembling. Remove and set aside for reassembly.

3. **Remove** the 4 screws (809643 #9) securing the ballast board to the chassis bottom.

4. **Lift** the ballast board up, so that it is resting on top of the power supply board, unplug the two (Keyed) connectors located on the ballast board, and **desolder** the black and white wires from the ballast board. Remove and replace as necessary.

5. **Reassemble** in reverse order.
   a. Be sure to reinstall the insulating material under the ballast board.
   b. The black and white wires from the lamp connector are routed through the insulator then resoldered into the proper holes in the ballast board (refer to wiring diagram).
   c. Be sure to place spacer (809643 #104) (809643 Section A-A) and cable clamps (809643 #20 & #53 (Moderately Difficult!)) into position before reassembling the fan baffle.
   d. Take care not to over tighten the screws to avoid stripping the housing.

Fan Replacement

1. **Remove** the top housing as outlined in top housing removal section.

2. **Remove** the fan baffle (809643 #97) by removing the two Phillips head screws (809643 #60 & #89) holding the baffle in place. Note to recover and set aside the spacer (809643 #104) (809643 Section A-A) while disassembling. Remove and set aside for reassembly.

3. **Free** the fan by removing the two bottom screws (809643 #31) securing the fan to the chassis bottmm.

4. **Unplug** connector P2 to the DC power supply and free the connector pins from the connector using a small screw driver or pliers.

5. **Replace** and reassemble in reverse order.
   a. Be sure to secure the ground harness (W004) when reassembling the fan to the chassis bottom.
   b. Be sure to place spacer (809643 #104) (809643 Section A-A) and cable clamps (809643 #20 & #53 (Moderately Difficult!)) into position before reassembling the fan baffle.

Thermal Cut-out Replacement

1. **Remove** the top housing as outlined in top housing removal section.

2. **Remove** the fan baffle (809643 #97) by removing the two Phillips head screws (809643 #60 & #89) holding the baffle in place. Note to recover and set aside the spacer (809643 #104) (809643 Section A-A) while disassembling. Remove and set aside for reassembly.

3. **Free** up and remove the thermal cut-out as follows:
   a. **Remove** the finger guard shield (809643 #99) temporarily by removing the phillips screws (809643 #95)secured to the chassis bottom in order to free the thermal cut-out wire harness and grommet.
   b. Free the grommets and tilt the shield out of the way.
   c. **Remove** the screw and flat washer (809643 #87 & 88) holding the thermal cut-out to the lamp holder, and remove the thermal cut-out.
   d. **Unplug** connector P2 to the DC power supply and P2B to the ballast.
   e. **Free** the connector pins from the connectors using a small screw driver or pliers.
   f. **Remove** and replace the thermal cut-out.

4. **Reassemble** in reverse order.
   a. Be sure to apply heat sink compound to the thermal cutout before reassembly.
   b. Be sure to secure the ground harness (W001) when reassembling the finger guard shield (809643 #99).
   c. Be sure to place spacer (809643 #104) (809643 Section A-A) and cable clamps (809643 #20 & #53 (Moderately Difficult!)) into position before reassembling the fan baffle.

Power Supply Replacement

1. **Remove** the top housing as instructed in "Top Housing Removal" section.

2. **Remove** the fan baffle (809643 #97) by removing the two Phillips head screws (809643 #60 & #89) holding the baffle in place. Note to recover and set aside the spacer (809643 #104) (809643 Section A-A) while disassembling. Remove and set aside for reassembly.

3. Cut the wire ties securing the yellow thermal cutout wires (W009) to the power supply bracket.

. **Unplug** the keyed connector (P1) with the brown and blue wires (W002) from the power supply, by **Pulling** straight up on the connector with a pair of needle-nose pliers and the keyed Vdc output plug (P2), by **Pulling** straight up on the connector with a pair of needle-nose pliers.

4. **Unplug** the green and yellow ground wire that attaches to the power supply.

5. **Unscrew** the four screws located on the four corners of the power supply board and lift the power supply out of the bottom housing.

6. **Reassemble** in reverse order.
   a. Be sure to put the insulator back into its original position. *Take care not to over tighten the screws, for they are only screwed into plastic.*
   b. Be sure to place spacer (809643 #104) (809643 Section A-A) and cable clamps (809643 #20 & #53 (Moderately Difficult!)) into position before reassembling the fan baffle.

Section

5

Maintenance

Preventative Maintenance

The purpose of preventative maintenance is to proactively reduce or eliminate future problems. Keeping the Light Source in good operating condition ensures that it will perform reliably and safely. Every six to twelve months, you should:

* Check the power cable for wear.

* Ensure that, during use, the light source receives adequate ventilation.

* Ensure that the ball detent of the fiber optic port is still functioning properly.

Visual Inspection

Check for anything out of the ordinary. For instance:

- Does the light source make too much noise?

- Are there any loose parts inside the box?

- Is the power switch working properly?

- Do all components connect/disconnect easily?

CLEANING

Refer to Operating Manual for proper cleaning procedure.

Check Ground Continuity

1. Disconnect the power cord from the Light Source.

2. Verify the impedance between the mains ground pin of the IEC detachable ground cord and the:
   a. Recessed ground lug on the inside bottom of the light source (100mΩ max).
   b. Fan screw located closest to the serial label (100mΩ max).
   c. Exposed metal section of the light dimming attenuator (Isolated, >20MΩ)

Measuring Leakage Current

To check the Chassis Leakage Current:

1. Connect the light source to a leakage tester (refer to figure 5-1), and measure leakage current on leakage meter. Ensure that leakage is <100μA.

2. Open ground line, and ensure leakage current is <100μA.

3. Reverse line polarity, and ensure that leakage current is <100μA.

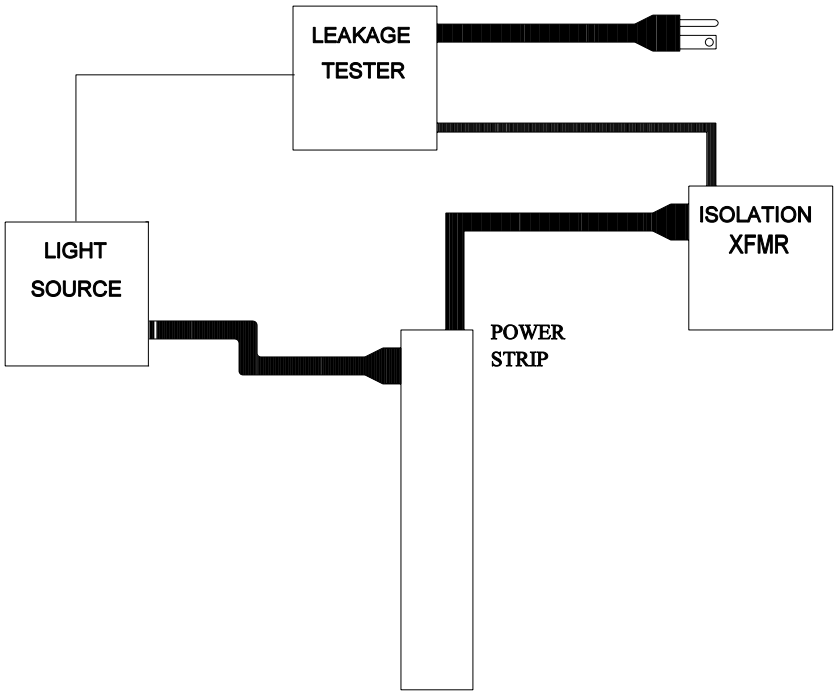
4. With reversed polarity, open ground line and ensure leakage is <100μA.

CAUTION: The meter must be suitably insulated and capable of withstanding the power line voltage.

LEAKAGE CURRENT TEST SET-UP

When the light source is used in conjunction with other accessories, it may be necessary to measure the leakage current level of the entire set-up. A typical system setup is shown in Figure 5-1. Using a standard leakage tester, this set-up will allow the overall system leakage current to be measured. If this value exceeds 100μA (or whatever the maximum requirements are for a particular region), an isolation transformer should be used.

Figure 5-1: Typical Current Leakage Test Set-Up



FUSE REPLACEMENT

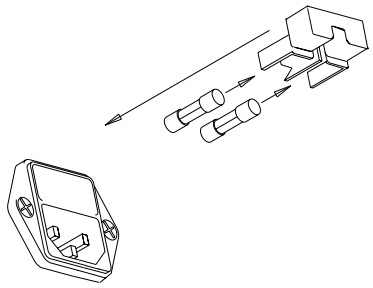
1. Turn the power switch OFF and disconnect the power cord from the light source.

2. Open fuse drawer located as part of the power cord receptacle.

3. Remove fuse by pulling it out firmly.

4. Check fuse condition. Replace if blown. Replacement fuse: 250V, 1.0 Amps. 5 x 20mm , Slow-Blow. ***Use WA fuse only! An unqualified fuse may fail prematurely.***

5. This system has two fuses. Be certain to check the condition of both fuses.



LAMP REPLACEMENT

1. Refer to users manual for full detail.

2. Turn the power switch OFF and disconnect the power cord from the light source.

3. Wait a minimum of 5 minutes to allow the lamp to cool.

4. Remove the lamp cover by unscrewing the thumb screw on the bottom of the light source.

NOTE: Removing the cover will automatically cut off power to the Light Source.

5. Disconnect the lamp connector.

6. Remove the lamp from the holding spring assembly by pulling back and sliding up toward yourself.

7. Acquire new replacement lamp assembly.

8. Reseat the new lamp assembly being sure the alignment pin is pointing toward the slot in the lamp holder.

9. Slide the black connector on to lamp.

10. Secure the lamp cover, reconnect the system, and verify lamp operation.

Section 6

Theory of Operation

Introduction

Start up Routine (Lamp Ignition)

Upon turning the power switch to the "ON" position, the lamp ballast will ignite the lamps for an approximate warm-up phase of 15 seconds. Once this warm-up phase is complete, the the lamps will be warmed up, and the system will be ready for use.

Note: Do not toggle the power switch ON and OFF. Doing so will cause a fault condition and will dramatically shorten lamp life.

Power Supply

UNIVERSAL INPUT, SWITCHING AC TO DC MEDICAL GRADE POWER SUPPLY

The power supply accepts an input voltage of 100-240 VAC, 50-60 Hz, single phase. The primary circuit provides adequate control of leakage current, which is limited to 35 microamperes maximum. The primary side of the power supply rectifies the AC voltage and converts it to a high voltage DC level. This DC voltage is connected to the isolation transformer through a switching device, typically a mosfet. The mosfet is triggered by a high frequency clock circuit, typically at a 30-50 KHz rate. The secondary side of this transformer provides isolation between primary and secondary circuits. The secondary voltage is rectified and filtered to provide a +15 VDC output voltage at 5.3 amps. The output voltage is regulated to 2%, with peak-to-peak noise of 150mV. The output is fully protected against short circuit and output overload. Short circuit protection is a cycling type power limit with automatic recovery after fault.

Ballast Board

The ballast board is a power supply used to operate the 24 watt Welch Allyn miniature arc lamp. The nature of arc lamps require a ballast which limits the current, and therefore the power, in the lamp. There are three states of the operation of the ballast: ignition, warm-up, and steady state. In ignition the ballast provides the lamp with a train of ignition pulses between 6 and 7 kV. Once the lamp is ignited the ballast conducts current at a very low impedance, which constitutes the warm-up phase. Once it warms up, the impedance changes to a higher steady state value. The ballast board also controls the Bulb Replacement indicator located directly next to the attenuator control. This LED will light when the output voltage to the lamp exceeds somewhere between 72Vdc to 82Vdc, which is an indication that the Arc Lamp is going to or has failed. The LED will also light due to a low voltage condition below 9Vdc to 10Vdc as again when the lamp fails to ignite.

Recommended Parts List

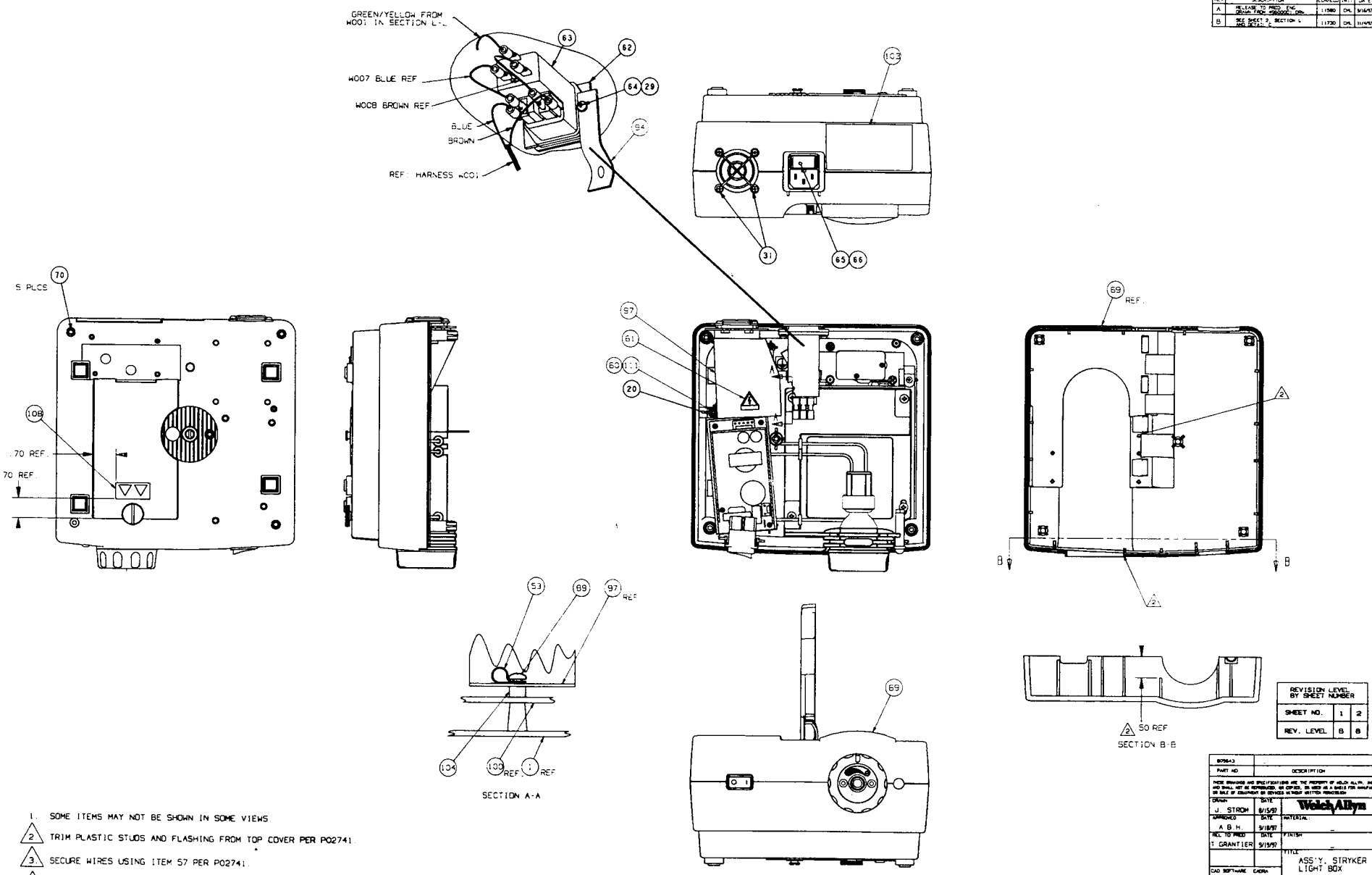
Assy	Bbl #	Part #	Description
809643	W002	496081-501	Switch (Power) Harness Assembly
809643	*W009	*809713	*Fan Wire Harness Assembly
809643	*W009	N/A	*Fan (See drawing 809713)
809643	*W009	N/A	*Thermal Cut-out (See drawing 809713)
809643	3	H7676	Double Pole Microswitch (Lamp Door Switch)
809643	19	43205119-02	24W Unregulated Ballast
809643	32	880031	40W Power Supply
809643	65	488307-9	1A Fuse
809643	77	495083	Rubber Feet
809643	106	09500	24W Lamp

***Note:** Fan Wire Harness Assembly (W009) is a purchase component that includes the fan and therman cut-out. Use a fan or thermal cut-out from a new assembly when it is deemed necessary to replace. You may want to stock several of these assemblies in the event of periodic fan or thermal cut-out failures.

809643 Bill Of Material

Bbl	Part No.	Qty.	Description
1	809587	1	HOUSING,BASE-STRYKER LIGHT BOX
3	H7676	1	MICROSWITCH, DOUBLE POLE
6	H2041	2	INSULATING PLATE
7	451534	2	SCREW PHP #4-40 X 1.0
9	106124-1	8	PLASTITE PAN HEAD SCREW
10	H2702	2	LABEL,PROTECTIVE EARTH,GRD-PAL
11	H2640	11	#10 EXT LW ST ZN
13	H240	3	10-32 HX MS NUT ST ZN
17	496025	1	INSULATOR, BALLAST
18	M31426	0	.032DIA ENERGIZED ROSIN SOLDER
19	43205119-02	1	BALLAST 24 WATT UNREGULATED
20	488308-5	2	CLAMP, CABLE
23	106132-3	1	4-40 X 1
24	H1697	1	#4 INT LW SS
25	H9211	1	FAN GUARD
26	496093	1	FAN MOUNTING RING
28	496124-1	1	FAN NUT PLATE
29	H326	4	#4 SPLIT MED LW ST ZN
30	790043	1	4-40 X .250 HEX NUT
31	106132-5	3	4-40 X .75 PH TR MS SS
32	880031	1	POWER SUPPLY 40 WATT
33	496026	1	INSULATOR, POWER SUPPLY
53	H6514	1	CABLE,CLAMP,NYLON
54	M11047	0	THERMAL COMPOUND #120-5
57	H1587	3	TIE, WIRE
60	106124-9	2	SCREW
61	441126	1	LABEL, ELECTRICAL HAZARD
62	496116-1	1	ADAPTER PLATE-BLK ANODIZE
63	496123	1	IEC LINE FILTER
64	106100-42	2	4-40 X .25 SCREW
65	488307-9	2	FUSE-1000 MA
66	808928	1	FUSEDRAWER, MED. RFI
69	809736	1	ASSY, TOP HOUSING
70	106120-4	5	6-32 X.750 FLSTR HD MACH SCREW
71	496033	1	LAMP ACCESS DOOR KNOB
73	470019	1	O-RING
77	495083	4	RUBBER FEET
81	106142-11	1	SPRING WASHER
82	H314	2	4-40 X .438 PH PN MS ST ZN
83	H319	2	6-32 X .630 PH PN MS ST ZN

Bbl	Part No.	Qty.	Description
84	H4418	2	4-40 X .375 PH FL MS ST ZN
85	H5090	2	4-40 X .188 PH PN MS ST ZN
86	H9193	1	LAMP SPRING, LCI
87	106132-4	1	6-32 X .3125 TRUSS HEAD SCREW
88	106103-41	1	WASHER, FLAT
89	106124-25	1	#8 X 1.00 PLASTITE SCREW
90	808129-501	1	ASSY, ACMI ATTEN. ENCORE
91	809242	1	SNAP RING, INTERNAL
92	809711	1	AIR DAM
94	809714	1	FINGER, EMI - AC INET
95	809715	3	#8 X .750 PH PN PTR ZN
96	496022-1	1	DOOR (FINISHED)
97	496073	1	FAN BAFFLE
98	806426	2	2-56X.187 PH PN SEMS-IL ST ZN
99	809595	1	SHIELD, FINGER GUARD
100	809596	1	PLATE, LAMP MOUNTING
101	809600	1	ADAPTER, LAMP HOLDER
102	809632	1	HOLDER, LAMP
103	809742	1	LABEL, SERIAL NO.
104	809743	1	SPACER, FAN BAFFLE
105	H7674	2	GROMMET, .126ID X .06 X .25
106	808111	1	LAMP, 24W CERAMIC RING MOUNT
108	808922	1	STICKER, CAUTION
109	495111	1	DIELECTRIC FILTER
110	M30329	0	LOCTITE 222
111	H497	2	#4 THRUST FW SS
112	H5518	2	#4 EXT LW ST ZN
W001	496067-502	1	HARNESS ASSY (IEC/INTERLOCK)
W002	496081-501	1	HARNESS ASSY (SWITCH)
W003	496088-501	1	HARNESS ASSY (PS TO GRND)
W004	496066-501	1	HARNESS ASSY (FAN TO GRND)
W005	808147	1	BALLAST SIDE CONN ASSY C12A003
W006	496131-501	1	HARNESS ASSY (LED)
W007	496050-501	1	BLUE JUMPER WIRE
W008	496050-502	1	BROWN JUMPER WIRE
W009	809713	1	HARNESS ASSEMBLY - FAN WIRE



REV	DESCRIPTION	ECN/ECO	INIT	DATE	CAD
A	RELEASE TO PROD. PER DRAW. FROM <809000> DRN.	11580	CHL	9/16/97	JRS
B	SEE SHEET 2, SECTION L	11730	CHL	11/4/97	-

1. SOME ITEMS MAY NOT BE SHOWN IN SOME VIEWS.
2. TRIM PLASTIC STUDS AND FLASHING FROM TOP COVER PER P02741.
3. SECURE WIRES USING ITEM 57 PER P02741.
4. ROUTE WIRE W001 THROUGH HOLE IN CHASSIS AS SHOWN.

REVISION LEVEL BY SHEET NUMBER		
SHEET NO.	1	2
REV. LEVEL	B	B

809643		
PART NO	DESCRIPTION	

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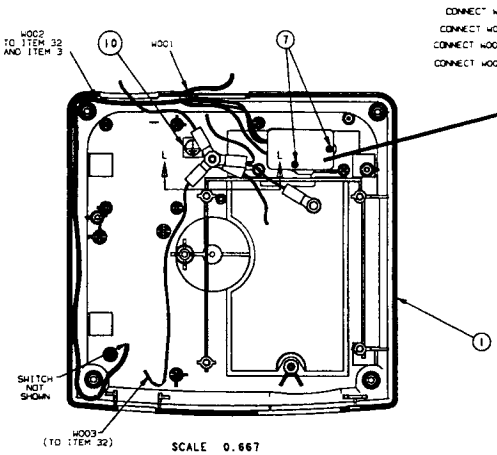
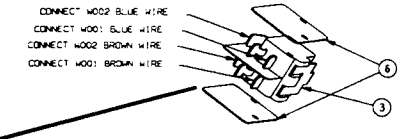
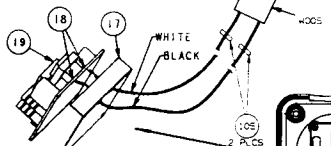
DRAWN	DATE	Welch Allyn
J. STROH	8/15/97	
APPROVED	DATE	MATERIAL
A.B.H.	9/18/97	-
REL TO PROD	DATE	FINISH
T. GRANTIER	9/19/97	-
CAD SOFTWARE	CADRA	TITLE
TRANSLATED FROM:	PRO-E	ASS'Y, STRYKER LIGHT BOX
UNLESS OTHERWISE SPECIFIED TOLERANCES DECIMALS .XX ± .03 .XXX ± .005 ANGLES ± 2°	DIMENSIONS ARE IN INCHES	SIZE D, DRAWING NO. 809643, REV B, SCALE 1:1, SHEET 1 OF 2

REV	DESCRIPTION	ECN/ECO	INIT	DATE	CKD
A	RELEASE TO PROD. ENG. DRAWN FROM W809642 DRN.	11560	CHL	9/16/97	JRS
B	DETAIL C WAS H, EDIT SECTION L	11730	CHL	11/4/97	-



SCALE 0.667





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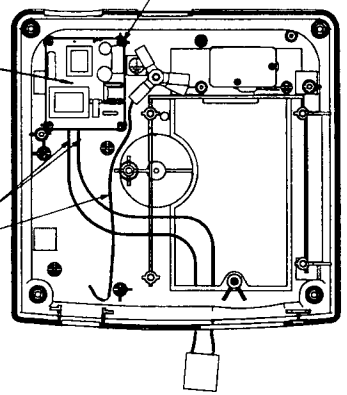
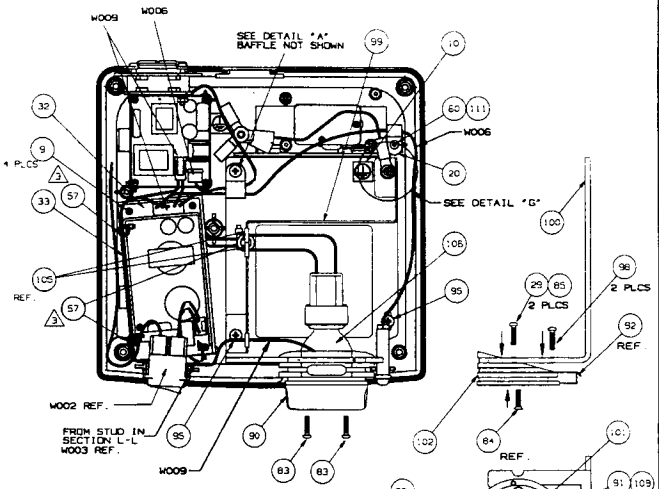
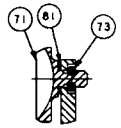
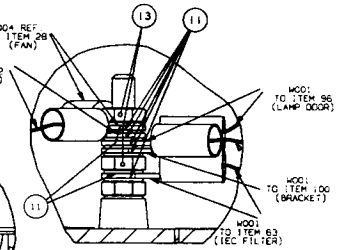


SCALE 0.667

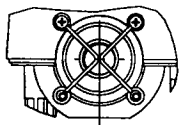


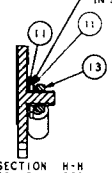


SECTION E-E
SCALE 2.000

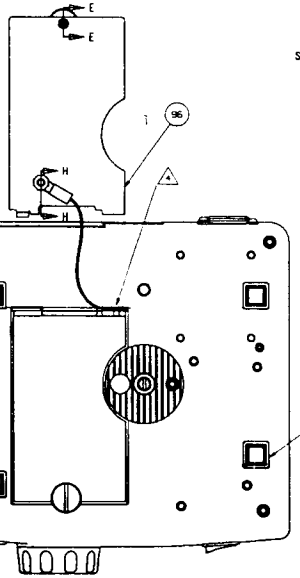

W004 REF. TO ITEM 28 (FAN)
13
11
W003 REF. TO ITEM 32 (CONDOR)
W001 TO ITEM 96 (LAMP DOOR)
W001 TO ITEM 100 (BRACKET)
11
W001 TO ITEM 83 (IEC FILTER)

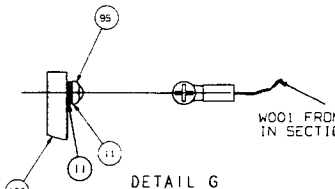
SECTION L-L
SCALE 2.000 (B)



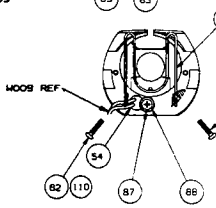


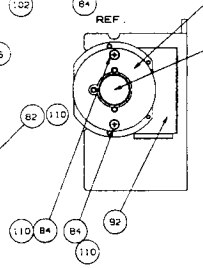
SECTION H-H
SCALE 1.250

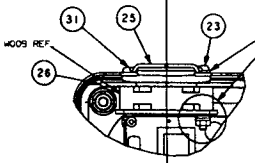


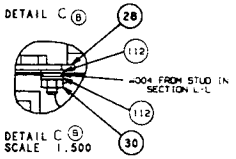


DETAIL G
SCALE 1.000

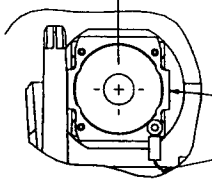








DETAIL C (B)
SCALE 1.500



FAN MOUNT DETAIL

W809643	-	
PART NO	DESCRIPTION	

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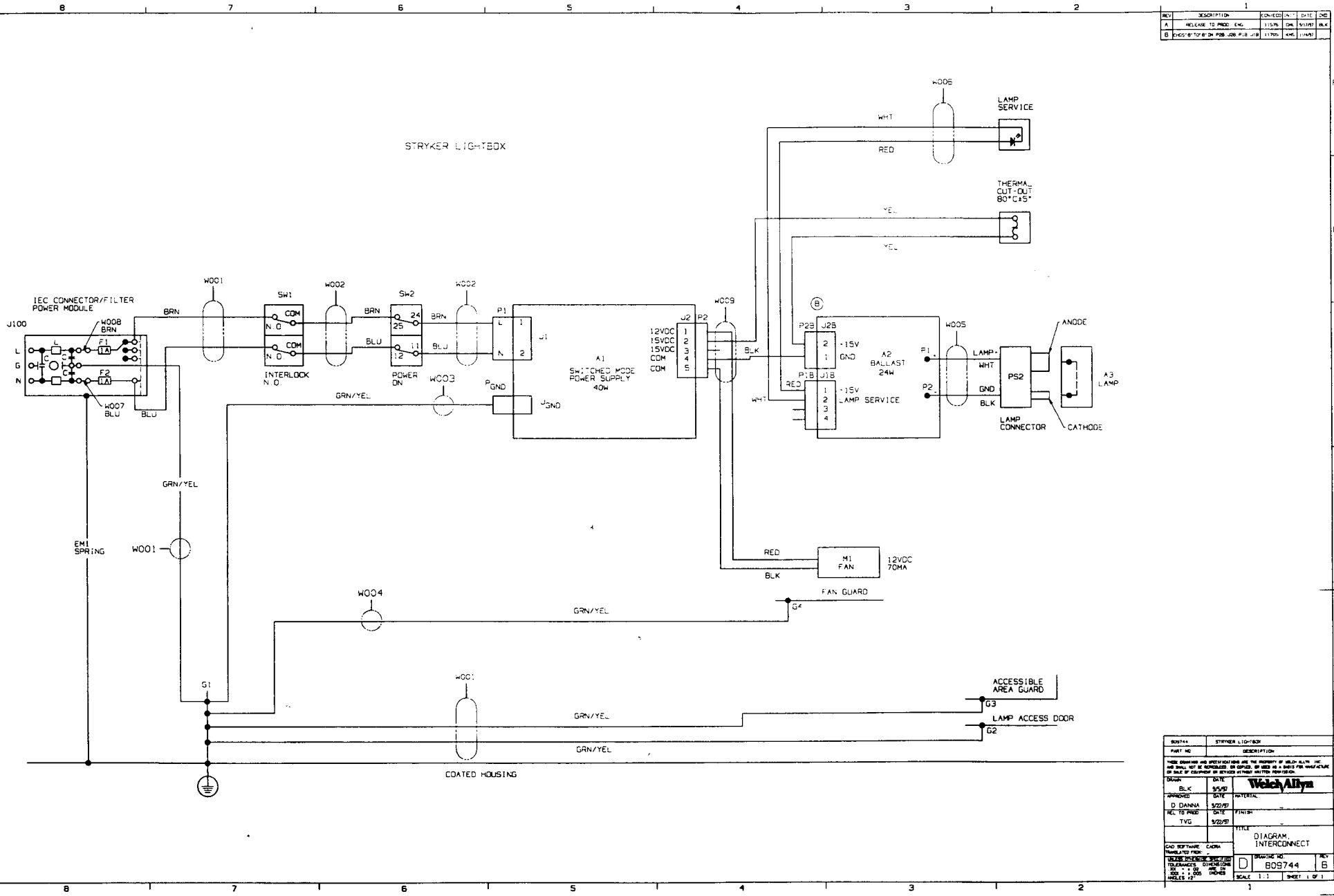
DRAWN	DATE	Welch Allyn
J. STROM	8/15/97	
APPROVED	DATE	MATERIAL
A.B.H.	9/18/97	-
REL TO PROD	DATE	FINISH
T. GRANTIER	9/19/97	-

TITLE: ASS'Y STRYKER LIGHT BOX

CAD SOFTWARE	CADRA	
TRANSLATED FROM	PRO-E	
UNLESS OTHERWISE SPECIFIED		
TOLERANCES	DIMENSIONS ARE IN	
.XX ± .03	INCHES	
.XXX ± .005		
ANGLES ±2°		

DRAWING NO. D 809643 REV B

SCALE 1:1 SHEET 2 OF 2



REV	DESCRIPTION	CN/ECO	BY	DATE	CHD
A	RELEASE TO PROD ENG	11575	CML	9/17/97	BLK
B	CHGS'B' TO'B' ON P2B J2B P1B J1B	11705	KMS	11/4/97	

809744	STRYKER LIGHTBOX
PART NO	DESCRIPTION

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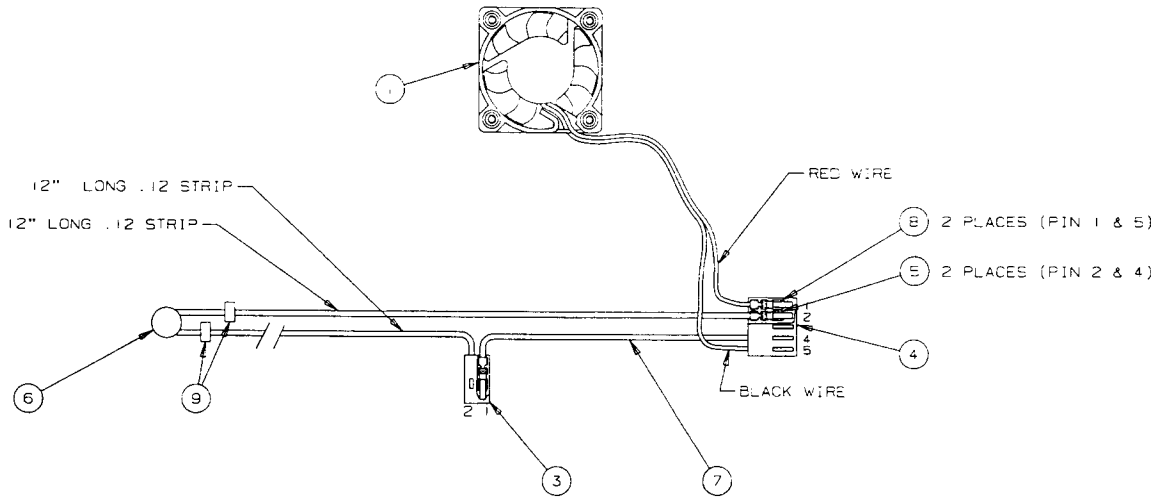
DRAWN BLK	DATE 9/5/97	Welch Allyn
APPROVED D DANNA	DATE 9/22/97	MATERIAL -
REL TO PROD TVG	DATE 9/22/97	FINISH -
CAD SOFTWARE CADRA		TITLE DIAGRAM, INTERCONNECT
TRANSLATED FROM -		
UNLESS OTHERWISE SPECIFIED TOLERANCES DIMENSIONS .XX ± .02 .XXX ± .005 ANGLES ±2° ARE IN INCHES		DRAWING NO D 809744 REV B
		SCALE 1:1 SHEET 1 OF 1

REV	DESCRIPTION	ECN/ECO	INIT	DATE	CKD
A	RELEASE TO PROD ENG DRAWN FROM USCORE 1.DFW	1561	CML	9/11/97	



NOTES:

1. WIRE SPECIFICATIONS:

   TYPE U.L. 1015, CSA TEW - 105

   COLOR CODED .032 THK. (NOM) PVC INSULATION.

   TEMP RANGE: -20°C TO +105°C.

   VOLTAGE RATING: 600V.

   STRANDED TINNED COPPER CONDUCTOR.

   RECOGNIZED COMPONENT MARK RU AND CSA MUST APPEAR ON SPOOL OR BE STAMPED ON WIRE.

△2 FAN SPECIFICATIONS:
   MANUFACTURE: SUNON
   PART NUMBER: KDE1204PFB2-8 WITH 6.75" LEADS, .12 STRIP
   FUNCTIONAL TEST: FAN MUST PASS 10 CONSECUTIVE ON/OFF STARTS AT 12.0 VDC.

△3 THERMAL CUTOUT SPECIFICATIONS:
   MANUFACTURE: THERMTROL
   PART NUMBER: B11-80A, 80C ±5 WITH 12" LEADS, .12" STRIP

4. ALL WIRE LENGTH TOLERANCE ±.25 UNLESS OTHERWISE SPECIFIED.

QTY	PART NO.	DESCRIPTION
△2 .	1	FAN
	2	
1	3	HOUSING, 2 POS MOLEX 09-50-8023
1	4	HOUSING, 5 PIN CT MOLEX 09-50-8051
4	5	TERMINAL, CRIMP MOLEX 08-52-0071 OR EQUIV
△3 1	6	THERMAL CUTOUT
1	7	WIRE #18 AWG BLACK, 3.50 X .12 X.12 STRIP
2	8	TREMINAL, CRIMP MOLEX 08-50-0133
2	9	GROMMET, .126 I.D. X .06 X .25 ATIN 54-G 26012 MATERIAL: BUNA 560 DUROMETER COLOR: BLACK

809713	
PART NO.	DESCRIPTION

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DRAWN: J. STROH	DATE: 08/19/97	Welch Allyn
APPROVED	DATE	MATERIAL: SEE NOTES
REL TO PROD	DATE	FINISH: SEE NOTES
		TITLE: HARNESS ASSEMBLY- FAN WIRE
CAD SOFTWARE: ANVIL TRANSLATED FROM:		
UNLESS OTHERWISE SPECIFIED TOLERANCES .XX ± .02 .XXX ± .005 ANGLES ±2° DIMENSIONS ARE IN INCHES		C DRAWING NO. 809713 REV A
		SCALE 1:1 SHEET 1 OF 1